UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,497	06/27/2002	John C. Reed	P-LJ 5137	2174

41552 7590 06/19/2006

MCDERMOTT, WILL & EMERY
4370 LA JOLLA VILLAGE DRIVE, SUITE 700
SAN DIEGO, CA 92122

EXAMINER	
SANG, HONG	

ART UNIT	PAPER NUMBER
1643	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,497	REED, JOHN C.	
	Examiner	Art Unit	
	Hong Sang	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *89-109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *89-109* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

RE: Reed

1. Applicant's response filed on 5/2/2006 is acknowledged. Claims 51-88 are cancelled. New claims 89-109 are added.

2. Claims 89-109 are under examination.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Objections Withdrawn

4. The objection of the specification because the first line of the specification is not updated is withdrawn in view of applicant's amendment to the specification.

Rejections Withdrawn

5. The rejection of claims 51-54, 58-68, and 72-77 under 35 U.S.C. 112, first paragraph as lacking enablement because the specification, while being enabling for a method for determining the risk of tumor recurrence or spread in a patient suffering from prostate cancer, and a method for determining a prognosis in a patient suffering from prostate cancer comprising determining a BAG-1 gene expression level in a cancerous prostate tissue and comparing said BAG-1 gene expression level in said patient to a reference BAG-1 gene expression level, does not reasonably provide enablement for a method for determining the risk of tumor recurrence or spread in a patient suffering from prostate cancer, and a method for determining a prognosis in a patient suffering from prostate cancer comprising determining any and all BAG gene expression level in a

cancerous prostate tissue and comparing to any and all BAG gene reference level is withdrawn in view of applicant's cancellation of claims 51-54, 58-68, and 72-77 and new claims being directed to determining the risk of tumor recurrence or spread or prognosis of survival in a patient suffering from prostate cancer by determining BAG-1 gene expression.

6. The rejection of claims 51-54, 58-68, and 72-77 under 35 U.S.C. 103(a) as being unpatentable over Froesch et al. (Proceedings of the American Association for Cancer Research Annual Meeting, March, 1998, 89: 13, print) in view of the teachings of Zapata et al (Breast Cancer Research and Treatment, 47: 129-140, IDS), and Sano et al. (US patent NO. 5,665,539, IDS) is withdrawn in view of applicant's cancellation of claims 51-54, 58-68, and 72-77.

New Ground of Rejections

Claim Rejections - 35 USC § 103

7. New claims 89-109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Froesch et al. (Proceedings of the American Association for Cancer Research Annual Meeting, March, 1998, 89: 13, print) in view of the teachings of Takayama et al. (Cancer Research 1998, 58: 3116-3131, IDS), Noordzij et al. (J. Urology, 1997, 158: 1880-1885) and Sano et al. (US patent NO. 5,665,539, IDS).

New claims are drawn to a method for determining the risk of tumor recurrence or spread in a patient suffering from prostate cancer, and a method for determining a

prognosis in a patient suffering from prostate, said method comprising: (a) determining a BAG-1 gene expression level in a cancerous prostate tissue sample form said patient, (b) comparing said BAG-1 gene expression level in said patient to a reference BAG-1 gene expression level, wherein said reference BAG-1 gene expression level being a level of BAG-1 gene expression above which correlates with increased risk of tumor recurrence or spread, or decreased survival, below which correlates with a decreased risk of tumor recurrence or spread or increased survival. Claims are further limited wherein said tumor spread comprises tumor metastasis, said BAG-1 gene expression level is determined by measuring a BAG-1 protein level, said BAG-1 protein level is determined with an antibody specific for BAG-1 protein, said BAG-1 gene encodes a nuclear BAG-1 protein, said BAG-1 gene encodes a cytosolic BAG protein, said BAG-1 gene encodes a protein BAG-1, said BAG-1 gene expression level is determined using an immunoassay, said survival is overall survival, said survival is distant metastasis free survival, said immunoassay is immuno-PCR assay, and said reference BAG-1 gene expression level is a level of BAG-1 gene expression above which correlates with increased risk of tumor recurrence or spread in a first group of patients compared to a second group of patients, said second group of patients having BAG-1 gene expression levels below said reference level.

Froesch et al. teach that BAG-1 protein (cytosolic BAG protein) is expressed in all 9/9 prostate cancer cell lines and 51/51 archival prostate tumor specimens, and BAG-1L protein (nuclear BAG protein) is expressed in prostate cancers and enhances androgen receptor function (see abstract and title). Froesch et al teach detection of

BAG-1 and BAG-1L proteins using immunobloting, immnohistochemistry and immunoprecipitation.

Froesch et al. do not teach the step of comparing said BAG gene expression level in said patient to a reference gene expression level. Froesch et al do not teach that comparing the BAG gene expression level of two groups of patients to a reference gene expression level, where the BAG gene expression level of the first group is higher than reference BAG gene expression level and that of the second group is lower than the reference BAG gene expression level. Moreover Froesch et al. do not teach an immuno-PCR assay. However these deficiencies are made up for in the teachings of Takayama, Noordzij and Sano et al.

Takayama et al. teach that BAG-1 protein was originally identified as a novel regulator of apoptosis by virtue of its ability to bind Bcl2, a potent blocker of cell death (see page 3116, left column, last paragraph). Takayama et al. teach that overexpression of BAG-1 has been shown to increase the metastatic potential of tumor cells in vivo (see page 3116, right column, 2nd paragraph, lines 5-7). Takayama et al. teach that BAG-1 can promote cell survival and augment the bioactivities of several proteins known to be important for tumorigenesis (e.g. bcl-2, Raf-1, HGF-R, and PDGF-R) (see page 3117, left column, 3rd paragraph). Takayama et al. teach that BAG-1 can be regarded as a candidate proto-oncogene (see page 3117, left column, 3rd paragraph). Takayama et al. teach that BAG-1 protein is consistently the most abundant form of BAG-1 expressed in tumors (see page 3127, left column, 1st paragraph). Takayama et al. teach that prostate cancer, breast cancer, and leukemia

cell lines were the most consistent expressors of BAG-1L (see page 3127, left column, 1st paragraph).

Noordzij et al. teach determining the level of oncoprotein bcl-2 and androgen receptor expression in pretreatment transurethral resection specimens of hormonally treated prostate cancer patients using immunohistochemistry and correlating the results with tumor stage and grade, and with the occurrence of clinical progression or tumor related death (see page 1880, abstract). Noordzij et al. teach that a combined bcl-2/androgen receptor score acts as an independent prognosticator for clinical progression (see abstract, under Conclusions).

Sano et al. teach detection of a protein using immuno-PCR (see abstract).

Therefore it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to determine the level of BAG-1 expressed in prostate cancer using immuno-PCR, compare the level with a reference level and further correlate the results with the risk of tumor recurrence, tumor spread and survival in a patient suffering from prostate cancer in view of the teachings of Froesch, Takayama, Noordzij and Sano. One would have been motivated to do so because Froesch et al. teach that BAG-1 protein is expressed in all 9/9 prostate cancer cell lines and all 51/51 prostate tumor specimens and BAG-1L protein is expressed in prostate cancers and enhances androgen receptor function, Takayama teaches that BAG-1 protein binds bcl2 and regulates cell apoptosis, and overexpression of BAG-1 has been shown to increase the metastatic potential of tumor cells in vivo, and Noordzij et al. teach that a combined bcl-2/androgen receptor score acts as an independent

prognosticator for clinical progression. Moreover, one of ordinary skill in the art would have had a reasonable expectation of success to determine the level of BAG-1 protein expressed in prostate cancer using immuno-PCR, compare the level with a reference level and further correlate the results with the risk of tumor recurrence, tumor spread and survival in a patient suffering from prostate cancer because Froesch et al have already successful detected BAG-1 protein in all 9/9 prostate cancer cell lines and all 51/51 prostate tumor specimens, Froesch and Takayama teach that BAG-1 regulates bcl2 and androgen receptor, Takayama teaches that overexpression of BAG-1 has been shown to increase the metastatic potential of tumor cells in vivo, and Noordzij et al. teach that determining the level of bcl2 and androgen receptor expressed in prostate cancer and correlating the results with tumor progression, and Noordzij further teach that a combined bcl-2/androgen receptor score acts as an independent prognosticator for clinical progression. Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Conclusion

8. No claims are allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Sang whose telephone number is (571) 272 8145. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry R. Helms can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hong Sang
Art Unit: 1643
June 1, 2006

LARRY R. HELMS, PH.D.
SUPERVISORY PATENT EXAMINER